

I CLAIM AS MY INVENTION:

1. A method for generating an x-ray exposure of an examination subject extending in a longitudinal direction and exhibiting a curved geometry, in a projection direction perpendicular to said longitudinal direction, comprising the steps of:

disposing an x-ray source and a radiation detector respectively at opposite sides of the examination subject;

moving said x-ray source and said x-ray detector in coordination with each other in said longitudinal direction along a curved path substantially corresponding to said curved geometry of said subject;

at each of a plurality of successive positions along said curved path, activating said x-ray source to generate a partial exposure of said subject, thereby obtaining a plurality of partial exposures; and

combining said plurality of partial exposures to form an overall x-ray exposure of said curved geometry of said subject.

2. A method as claimed in claim 1 comprising, at each of said positions, aligning said x-ray source and said x-ray detector with each other and with respect to a portion of said subject to be acquired in the partial exposure at that position, for causing a projection direction associated with the partial exposure at that position to be substantially at a right angle relative to said portion.

3. A method as claimed in claim 1 comprising moving each of said x-ray source and said x-ray detector along respective curves corresponding to said curved geometry.

4. A method as claimed in claim 1 comprising using, as said x-ray detector, an x-ray detector having a narrow detector surface in said longitudinal direction.

5. A method as claimed in claim 1 comprising using, as said x-ray detector, an x-ray detector having an active surface and using only a narrow region of said active detector surface of said x-ray detector for generating each of said partial exposures.

6. A method as claimed in claim 5 comprising using only a middle region of said active surface of said x-ray detector as said narrow region.

7. A method as claimed in claim 1 comprising generating a customized curve set, embodying said curved path for said x-ray source and said x-ray detector, for said examination subject dependent on body parameters of said examination subject.

8. A method as claimed in claim 7 comprising generating said curved path in said curve set by:

classifying said body parameters of said examination subject as representing an examination subject type from among a plurality of examination subject types;

providing a standardized curved path; and

scaling said standardized curved path dependent on said examination subject type for producing said curved path in said curve set for said examination subject.

9. A method as claimed in claim 7 comprising generating said curved path in said curve set by:

providing a plurality of standardized curve sets respectively for a plurality of examination subjects having different body parameters; and

selecting a curve set for said examination subject from among said plurality of curve sets for which said body parameters most closely match the body parameters of said examination subject.

10. A method as claimed in claim 1 wherein said curved geometry is formed by a spinal column of the examination subject, and comprising moving said x-ray source and said x-ray detector along said curved path corresponding to said spinal column.

11. A method as claimed in claim 10 comprising determining external body dimensions of said examination subject and, from said external body dimensions, determining a length of said spinal column, and using said length of said spinal column to determine said curved path for moving said x-ray source and said x-ray detector.

12. A method as claimed in claim 11 comprising obtaining a reference exposure of said examination subject, before moving said x-ray source and said x-ray detector along said curved path, with said examination subject lying substantially parallel to said longitudinal direction and substantially perpendicular to said projection direction, and obtaining said external body dimensions from said reference x-ray exposure.

13. An x-ray system for producing an x-ray exposure of an examination subject extending in a longitudinal direction and exhibiting a curved geometry in a projection direction perpendicular to said longitudinal direction, comprising:

an x-ray source and an x-ray detector adapted to be disposed on opposite sides, respectively, of said examination subject;
a control device;

- a mounting arrangement, operated by said control device, to which said x-ray source and said x-ray detector are attached; and
- said control device operating said mounting arrangement for moving said x-ray source and said x-ray detector in said longitudinal direction along a curved path substantially adapted to said curved geometry, for producing a plurality of partial exposures, in said projection direction, respectively at a plurality of positions along said curved path; and
- an image computer, supplied with said plurality of partial exposures, for generating an overall exposure of said curved geometry of said examination subject from said partial exposures.
14. An x-ray system as claimed in claim 13 wherein said image computer directly combines said plurality of partial exposures to form said overall image.
15. An x-ray system as claimed in claim 13 wherein said image computer archives said plurality of partial exposures with respective identifications for subsequent combination to form said overall image.
16. An x-ray system as claimed in claim 13 wherein said x-ray source and said x-ray detector are mounted in said mounting arrangement for allowing each of said x-ray source and said x-ray detector to be pivoted around an axis perpendicular to said longitudinal direction and perpendicular to said projection direction.
17. An x-ray system as claimed in claim 13 wherein said mounting arrangement allows movement of at least one of said x-ray source and said x-ray detector in said projection direction.
18. An x-ray system as claimed in claim 13 wherein said control device automatically moves at least one of said x-ray source and said x-ray detector along a freely selectable curve, forming said curved path.

19. An x-ray system as claimed in claim 13 wherein said control device controls said mounting arrangement to position said x-ray source and said x-ray detector, at each of said positions along said curved path, to align said x-ray source and x-ray detector and a portion of said examination subject to be imaged in the partial exposure at that position, for causing a partial exposure projection direction for the partial exposure to be acquired at that position to be substantially at a right angle to said portion.

20. An x-ray system as claimed in claim 13 wherein said x-ray detector has an active detector surface that is narrow in said longitudinal direction.

21. An x-ray system as claimed in claim 13 wherein said x-ray detector has a detector surface, and comprising an x-ray detector control device connected to said x-ray detector for activating only a narrow region of said detector surface in said longitudinal direction for generating said plurality of partial exposures.

22. An x-ray system as claimed in claim 13 wherein said control device comprises a memory containing a curve set, including said curved path, customized for said examination subject.

23. An x-ray system as claimed in claim 13 wherein said control device comprises a memory containing a plurality of curve sets, each including a different curved path, respectively for a plurality of different examination subject types, and wherein said control device selects one of said curve sets from said memory, for an examination subject type most closely corresponding to said examination subject, for operating said mounting arrangement for moving said x-ray source and said x-ray detector along the curved path in the selected curve set for producing said plurality of partial exposures.

24. An x-ray system as claimed in claim 13 wherein said control device comprises a memory containing a standardized curve set, and wherein said control device is supplied with data representing a physical measurement of said examination subject and scales said standardized curve set dependent on said data to generate said curved path for moving said x-ray source and said x-ray detector for producing said plurality of partial exposures.

25. An x-ray system as claimed in claim 24 wherein said control device operates said mounting arrangement and said x-ray source and said x-ray detector for generating a reference x-ray exposure of said examination subject lying substantially parallel to said longitudinal direction and substantially perpendicular to said projection direction, before operating said mounting arrangement for moving said x-ray source and said x-ray detector along said curved path, and wherein said control device obtains said data from said reference x-ray exposure.